YALE UNIVERSITY
OSBORN BOTANICAL LABORATORY
NEW HAVEN, CONNECTICUT

December 6, 1946.

Dr. A. Boivin,
Faculté de Médicine
Université de Strasbourg,
Strasbourg, France.

Dear Dr. Boivin,

As Dr. Lwoff may have already intimated to you, your work on the transmutation of characters in Escherichia coli has excited a great deal of interest in this country, and particularly in this laboratory since Dr. Tatum and myself have been engaged in the study of gene recombination in this species. I have had sent to you, under separate cover, reprints of our papers, which may serve to outline our approach. It is very evident that the work which you have been doing has a very direct bearing on ours, and for that reason, I should like to take this opportunity to inquire of you for certain details, and to request reprints of your papers.

Since the time of publication of our note in Nature (Oct. 19) we have accumulated evidence that genetic materials from three types grown together will mix only two at a time, thus supporting the hypothesis that the recombination types mentioned are derived from sexual fusion and segregation rather than from the exchange through the medium of transforming factors. It remains of interest that many of the types which we found could be explained on the basis of transmutation only if such a process could direct a mutation in the direction of the loss of a function

as wellas a gain. For this reason (since other reports of transmutations invariably involve the acquisition of a function such as an antigen) we are particularly curious as to whether the transformation of your E. coli strains can be accomplished in both directions, and, in particular whether the enzymatic properties can be diminished as the result of transformation. We should be extremely grateful for the elucidation of this question.

You may be interested that we have attempted to induce the transmutation of nutritional characters in our E. coli by the use of sterile filtrates without success, but we shall have to renew our efforts, using bacterial extracts and lysates.

Respectfully yours,

Joshua Lederberg.